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09/481,043	01/11/2000	RANDALL L. SIMPSON	IL-10127B	5097

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Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/481,043
Filing Date: January 11, 2000
Appellant(s): SIMPSON ET AL.

For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/28/2008 appealing from the Office action mailed 6/3/2008

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4,952,341	Sayles	08-1990
4,481,371	Benziger	11-1984

- The Sol-Gel Process, Larry L. Hench; Jon K. West, Chem. Rev. 1990, 90(1), pp 33-72
- Science and Technology Review, page 23, Nov/Dec 1995
- Applicant's Admitted Prior Art- "known in the art for producing a variety of metal oxide, organic, and carbon aerogels and xerogels, and these materials have been utilized for various purposes. The composition of the aerogels or xerogels is varied by the sol-gel processing, whereby various surface areas, densities, etc. can be produced" (page 13, lines 5-23).

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

Claims 1, 26-38, 40, 41, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayles (4952341) or Benziger (4481371) in view of the article to Hench et al entitled "The Sol Gel Process", the article from Science and Technology Review, and the admitted prior art in Applicant's specification (page 13, lines 5-23).

Sayles discloses that "[b]urning rates of propellants are also influenced by surface area and particle sizes of the oxidizer ingredients. Porosity is another factor which increases burning rate of solid propellant grains" (col. 1, lines 50-57). Sayles also uses ammonium perchlorate (table 1). Alternatively, Benziger discloses that "it has been generally known that the sensitivity of solid explosives can be increased by decreasing the particle size of the material and correspondingly increasing the surface area per unit weight of the material (col. 1, lines 40-45).

The article to Hench et al discloses various sol-gel methods and indicates that sol-gel processing is useful for making materials with high surface area that are porous. (see particularly pages 33, 35-37, 42, 57, 65, and 68).

The article from Science and Technology Review (pg 23) teaches the use of a sol-gel process that is less expensive.

Applicant's specification admits that the sol-gel process is "known in the art for producing a variety of metal oxide, organic, and carbon aerogels and xerogels, and these materials have been utilized for various purposes. The composition of the aerogels or xerogels is varied by the sol-gel processing, whereby various surface areas, densities, etc. can be produced" (page 13, lines 5-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the sol-gel processes as taught by the Science and Technology article, article to Hench et al, and the admitted prior art in Applicant's specification with the explosives disclosed by Benziger and Sayles since Benziger and Sayles both disclose that it is known in the explosive and propellant art to use high surface areas and porosity to improve burn rate and since the articles and admitted prior art teach that the sol-gel processes are known ways to make materials with high surface area and porosity.

Claim Rejections - 35 USC § 102

Claims 1, 32, and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by the article from Science and Technology Review.

The article from Science and Technology Review (pg 23). teaches the claimed sol-gel process that is less expensive and uses materials such as carbon as the fuel and the oxidizer is provided by the air in the aerogel. Carbon and air can also function as propellants.

(10) Response to Argument

Rejection over Sayles (4952341) or Benziger (4481371) in view of the article to Hench et al entitled "The Sol Gel Process", the article from Science and Technology Review, and the admitted prior art in Applicant's specification (page 13, lines 5-23).

Applicant first argues unexpected results which are not considered to be persuasive. First, no test results have been set forth to show these alleged unexpected results. Second, attorney arguments cannot substitute for such results.

Applicant also argues specific details of the references to Sayles and Benziger. These arguments are irrelevant since the Examiner has utilized these references for the disclosure that it is known in the explosives art to vary porosity, surface area and particle size to influence the burning rate of propellants. These teachings lead one of skill in the art to utilize sol-gel chemistry which is known for obtaining porous, high surface area, and small particle size materials since Sayles and Benziger show that it was a known goal in the explosive art to obtain such products.

Applicant's arguments regarding the admitted prior art from the specification are also unpersuasive. The specification states that it is "known in the art for producing a variety of metal oxide, organic, and carbon aerogels and xerogels, and these materials have been utilized for various purposes. The composition of the aerogels or xerogels is

varied by the sol-gel processing, whereby various surface areas, densities, etc. can be produced" (page 13, lines 5-23, emphasis added). Since this language clearly shows that it was "known in the art", the Examiner considers this language to be admitted prior art. Thus, it is available for the rejection under 35 U.S.C. 103.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is obvious to use the sol-gel processes as taught by the Science and Technology article, article to Hench et al, and the admitted prior art in Applicant's specification with the explosives disclosed by Benziger and Sayles since Benziger and Sayles both disclose that it is known in the explosive and propellant art to use high surface areas and porosity to improve burn rate and since the articles and admitted prior art teach that the sol-gel processes are known ways to make materials with high surface area and porosity.

Applicant also makes various arguments regarding the solution exchange process step, materials in the pores of the sol-gel, dangling functionalized sites, and a 3-D skeletal structure with void spaces. Applicant also refers to a reference by Heinz which the Examiner assumes is the Hench reference. These limitations are met by the Hench reference which shows the use of additional solution such as a surfactant (pg.

37, col. 1), 3-D skeletal structure with void spaces (pg 38, col.2), materials in the pores of the sol-gel and dangling functionalized sites (pg 36, col. 2). Further note that the Science and Technology article also shows the solution exchange steps in an improved method of sol-gel processing.

Rejection over article from Science and Technology Review

Regarding claims 1, 32, and 45, the article from Science and Technology Review clearly shows the use of carbon with sol-gel process and the oxidizer is provided by the air in the aerogel. These materials can also function as propellants. Applicant argues that air is not a solid and the Examiner has never asserted that it was, note that the claim does not require all the components to be solid and does not require that the oxidizer is solid. The claim is also of "comprising" scope and would allow for a gaseous oxidizer. Carbon can clearly be considered as a fuel. Applicant also defines an "energetic material" to be "any material which stores chemical energy in a fixed volume." (Specification, pg. 1, lines 8-10). It is hard to imagine a broader definition of this claim language and thus the disclosure of carbon skeleton with air inside the pores meets the claim limitation.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Aileen Felton/

Primary Examiner

Conferees:

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